

REMARKS

Claims 1-6, 11-17, 20-24, 28 and 30-32 remain pending in this application. Claim 1 is currently amended. Each of the pending claims is believed to define an invention that is novel and unobvious over the cited references. Favorable reconsideration of this case is respectfully requested.

Claims 1, 16-20 and 24-27 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,404,522 to Handelman in view of U.S. Patent Number 6,545,781 to Chang.

Handelman does not disclose the plurality of routes and router element as claimed, as noted in section three from the Office Action. Chang does not supplement Handelman to teach or suggest these features. Chang is an attempt to set a route and not cause a transmission delay on the IP network, see column 1, lines 35-40 of Chang. In Chang, the setting of a route is achieved by using the function of the IP network (layer three). The switch for routing the optical signal performs routing based on the data and overhead, that is the header. Please see Figure 2 of Chang.

In comparison, embodiments of the invention can achieve wavelength switching in layer one. For example, the signal from the evaluation signal generator unit 25 is input to a route for transmitting an optical signal when there is no input to signal selection unit 24, the transmission characteristic is measured, and the switching function of a route is achieved, please see Figure 12 of the present application. Independent claim 1 has been amended to recite that the routes are set based on an evaluation of the routes.

Additionally, independent claim 16 recites that the optical transmission device and optical receiving device generate transmission quality information for a plurality of routes. The network management device applies the optical transmission device distribution instructions for distribution of each wavelength to appropriate routes. For example, the optical passing switch is executed by the evaluation by the terminal unit of layer 1. This is shown in Figure 8 of the present

application. An optical route of each wavelength that has become empty is detected. An empty route is evaluated. The routing is then done based on this evaluation.

This is in contrast to the method disclosed in Chang. In Chang, the optical passing switch is executed based on header information. The present claims are quite different from the optical signal routing based on header information.

Accordingly, it is clear that the invention recited in independent claims 1 and 16 are not taught or suggested by the cited references, taken alone or any combination. Therefore, the withdrawal of this rejection is respectfully requested.

Moreover, dependent claims 17-18 recite features not taught or suggested in the cited references. Claims 17-19 relate to a method of inputting the evaluation signal when there is no specific signal input in an optical passing, and evaluating a transmission line characteristic. Neither Chang nor Handelman teach or suggest this feature. In Chang there is simply no concept of an optical characteristic evaluation signal. Regarding Handelman, the element noted by 305 in Figure 2 of Handelman actually monitors data signals, and does not generate evaluations signals. Accordingly, the cited references taken alone or in combination, do not teach or suggest the features recited in the dependent claims. Therefore, these claims are patentable over these cited references.

Dependent claim 24 also recites features not present in the cited references. Note that claims 25-27 were canceled in the previous amendment and incorporated into claim 24. Claim 24 recites that a pass/fail judgment is made on transmission quality based on the transmission quality information; and the transmission speed of the WDM signal output unit of the optical channel unit is controlled based on this judgment result. With this feature, it is possible to avoid large errors even when the signal is deteriorated due to a nonlinear effect. Please see page 33, lines 22-27 for this and other advantages of the present invention.

In view of the above, it is clear that the cited references, do not teach or suggest the claimed invention. Therefore, the withdrawal of this rejection is respectfully requested.

Claims 2, 4-10 and 21 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman in view of Chang and further in view of U.S. Patent Number 6,466,985 to Goyal. Each of these claims depends from independent claims 1 and 16 and would be patentable over the cited references for at least the reasons discussed above regarding claims 1 and 16. Moreover, Goyal does not supplement the previously discussed references to teach or suggest the present invention. Therefore, the withdrawal of this rejection is respectfully requested. Please note that claims 7-10 were canceled in the previous amendment and incorporated into claim 6.

Claims 3, 22 and 23 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman in view of Chang and further in view of U.S. Patent Number 6,574,018 to Handelman. Each of claims 3, 22 and 23 depend directly or indirectly from independent claims 1 and 16 and would be patentable over the cited references for at least the reasons discussed above regarding the independent claims. Handelman '018 does not supplement the cited references to teach or discuss the present invention.

Moreover, dependent claim 3 recites additional features that are not taught or suggested by the cited references. Dependent claim 3 relates to a delay circuit that compensates for the bit phase which extends over two or more wavelengths. In comparison, the delay generator 165 in Handelman is a circuit that avoids the collision of a signal that passes in the crossing connection switch, see column 15, lines 15-30 of Handelman. This is quite different from the delay circuit recited in dependent claim 3.

Accordingly, the cited references taken alone or in combination, do not teach or suggest the features recited in the rejected claims. Therefore, withdrawal of this rejection is respectfully requested.

Claims 11-14 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman, Chang, and Goyal further in view of U.S. Patent Number 5,949,563 to Takada.

Each of these claims depend direct or indirectly from dependent claim 1 and are patentable for at least the reasons discussed above for at least the reasons discussed above regarding

independent claim 1. Goyal and Takada do not supplement Handelman and Chang to teach or suggest the present invention. Therefore, the withdrawal of this rejection is respectfully requested.

Claim 15 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman, Chang and Takada. Claim 15 depends from independent claim 1 and is patentable for at least the reasons the discussed above regarding independent claim 1. Takada does not supplement Handelman or Chang to teach or suggest the claimed invention. Therefore the withdrawal of this rejection is respectfully requested.

Claims 28-32 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman, Chang, further in view of Takada. Please note that the features of claims 29 were incorporated into claim 28 in the previous amendment. Claims 28-32 depends from independent claim 16 and are patentable over the cited references for at least the reasons discussed above regarding independent claim 16. Takada does not supplement Handelman and Chang to teach or suggest the present invention. Claim 28 relates to the transmission quality. Defect information generated in the optical channel unit, and defect information generated in the network element in the optical receiver and the WDM network are included in information regarding transmission quality. Because an optical route is switched based on the breakdown of an optical route, problems, such as the breakdown of an optical route, can be avoided. In comparison, in Takada the switch trigger can not be completely generated due to the fact that the breakdown of the transmission line is not considered. Accordingly, it is clear that Takada is quite different from the invention recited in claim 28.

Regarding dependent claim 30, and auxiliary optical channel unit is not included in Takada.

In view of the above, it is clear that the cited references do not teach or suggest the present invention. Therefore, the withdrawal of this rejection is respectfully requested.

In view of the foregoing amendments and remarks, the Application is believed to be in condition for allowance and a notice to the effect is respectfully requested.

Should the Examiner not find the Application to be in allowable condition or believe that a conference would be of value in expediting the prosecution of the Application, Applicants respectfully request that the Examiner telephone the undersigned Counsel to discuss this case and afford the Applicants an opportunity to submit any Supplemental Amendment that might advance prosecution and place the Application in condition for allowance.

Dated:

Respectfully submitted,

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